



EP3260: Machine Learning Over Networks
Computer Assignment 2
Due Date: February 14, 2023

Computer Assignment 2 - Deterministic/stochastic algorithms in practice

Let us consider the logistic ridge regression

$$f(\mathbf{w}) = \frac{1}{N} \sum_{i \in [N]} f_i(\mathbf{w}) + \lambda \|\mathbf{w}\|_2^2,$$

where $f_i(\mathbf{w}) = \log(1 + \exp\{-y_i \mathbf{w}^T \mathbf{x}_i\})$ for the “Greenhouse gas observing network” dataset.

Then, address the following:

- 1) Solve the optimization problem using GD, stochastic GD, SVRG, and SAG;
- 2) Tune a bit the hyper-parameters (including λ);
- 3) Compare these solvers in terms of complexity the hyper-parameter tuning, convergence time, convergence rate (in terms of # outer-loop iterations), and memory requirement.